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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,868	01/13/2004	Joseph P. Odenwalder	PA298B2A3D1	3404
23596	7590	02/27/2009		
QUALCOMM INCORPORATED				
5775 MOREHOUSE DR.				
SAN DIEGO, CA 92121				
EXAMINER				
TSE, YOUNG TOI				
ART UNIT		PAPER NUMBER		
2611				
NOTIFICATION DATE		DELIVERY MODE		
02/27/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com

kascanla@qualcomm.com

nanm@qualcomm.com

Office Action Summary

Application No.

10/756,868

Applicant(s)

ODENWALDER, JOSEPH P.

Examiner

YOUNG T. TSE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2008.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-18 and 20-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-12, 14-18, 20-29 and 31-35 is/are rejected.
- 7) ☒ Claim(s) 4-9, 12-13, 15, 17, 20, 22-24, 29-30, 32 and 34-35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 20080919
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed September 19, 2008 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. The copy of foreign patent document EP0460862 has not been received by the USPTO.

Response to Arguments

2. Applicant's arguments filed December 18, 2008 have been fully considered but they are not persuasive.

Applicant argues that certain other drawings are present in the application, namely Figs. 4, 8 and 10, showing alternate modulator embodiments of the modulator 104 shown in Fig. 2, and the present design is therefore not limited to the modulator design of Fig. 4.

The examiner agrees that the embodiments shown in Figs. 4 and 10 are genetic to the modulator 104 of the transmitter shown in Fig. 2, but not Fig. 8, as recited in each of the independent claims 1, 18, and 35 because Fig. 8 does not include a combination circuit for combining plurality of streams for modulated symbols to a complex multiplying

circuit. Further, only Fig. 10 comprises two adders. Therefore, at least some of the claimed subject matters recited in claims 9, 20, and 22-24 do not correspond to the disclosure of the embodiments of Figs. 4 and 10 as described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. See the suggested changes below by the examiner in order to overcome the 112, first paragraph rejections.

Claim Objection

3. Claims 4-9, 12-13, 15, 17, 20, 22-24, 29-30, 32, and 34-35 are objected to because of the following informalities:

Claim 4, line 1, "said modulating" should be "said modulating each of the plurality of channels of data" to avoid the antecedent basis of "said modulating".

Claim 5, line 1, "claim 1" is suggested change to "claim 4", and line 5, "a third" should be "the third" if claim 5 depends on claim 4.

Claim 6, line 1, "claim 1" should be changed to "claim 4" since the highest stream of modulated symbols recited in the precedent claim 1 is the second stream of modulated symbols.

Claim 7, lines 3-4, the phrase "one of the first stream and the second stream" should be "the first and second streams", line 7, "remaining of the first stream and the second stream" should be "third stream", and line 9, "second stream" should be "third stream".

Claim 8 should be cancelled.

Claim 9, line 1, "claim 8" should be "claim 6".

Claim 12, line 1, "claim 1" should be "claim 10", line 3, "streams and an in-phase" should be "stream and the in-phase", and line 5, "streams and a quadrature-phase" should be "stream and the quadrature-phase".

Claim 13, lines 3, 5, 7, and 9, "combined streams" should be "combined stream".

Claim 15, line 2, "second code" and "third code" should be "third code" and "second code", respectively.

Claim 17, lines 2 and 4, "comprises" and "gains of each of the remaining streams of modulated symbols to values" should be "comprise" and "gain of the second stream of modulated symbols to a value", respectively.

Claims 20 and 22-24 should be cancelled.

Claim 29, line 1, "claim 18" should be "claim 27", line 3, "an in-phase" should be "the in-phase", and line 5, "a quadrature-phase" should be "the quadrature-phase".

Claim 30, line 2, "second code" and "third code" should be "third code" and "second code", respectively.

Claim 34, line 3, "a gain" should be "a first gain", and lines 5-6, "plurality of adjusters configured to adjust gains of each of the remaining streams of modulated symbols to values" should be "gain adjuster configured to adjust gain of the second stream of modulated symbols to a value".

Claim 35, line 9, "of channel encoded data" should be "of channels of data".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 9, 20, and 22-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The configuration of at least some of the claimed subject matters of claims 9, 20, and 22-24 does not correspond to the disclosure of Fig. 10 which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. For example, Fig. 10 does not include four streams of modulated symbols, as recited in claims 9 and 23-24; a second adder configured to provide the second stream of modulated symbols as a second combined stream, as recited in claim 20; and a second adder configured to provide the third stream of modulated symbols as a second combined stream, as recited in claim 22.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

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regards as the invention. Claim 22, line 5, the phrase "said third stream of modulated symbols" lacks antecedent basis.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 3-5, 10-11, 15, 18, 20-22, 27-28, 32, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Dahlman et al. (U.S. Patent No. 5,896,368, hereinafter "Dahlman").

Dahlman discloses an apparatus shown in Fig. 2C comprising a base station transmitter 150 for receiving combination signals from each of downlink traffic information processors 200A to 200K. The detail embodiment of each of the downlink traffic information processors 200A to 200K is shown in Fig. 2A. The detail embodiment of each of the short-code modulators 210a to 210m of each of the downlink traffic information processors 200A-200K of Fig. 2A is shown in Fig. 2B.

Regarding claims 1, 18, and 35, the apparatus comprises a plurality of modulators 210a-210m (Fig. 2A) configured to modulate each of a plurality of channels of data with an associated code generated by a short-code generator 207 to produce a

plurality of streams of modulated symbols; a combiner 215 and/or 290 (Fig. 2C) communicatively coupled to the plurality of modulators, configured to combine the plurality of streams of modulated symbols into a combined stream; and a complex multiplier 300 and 302 (Fig. 2C), communicatively coupled to the combiner, configured to complex multiply the combined stream with a complex pseudo-noise code generated by a long-code generator 285 to reduce a peak-to-average ratio of the transmission. As shown in Fig. 2B, each of the short-code modulator 210 comprises a modulator 280 configured to modulate either control data of bits derived from a QPSK modulator 270 with a first code to produce a first stream of modulated symbols and/or a user channel encoded data derived from a convolutional encoder 230 with a second code to produce a second stream of modulated symbols.

Regarding claim 3, wherein combining the plurality of streams of modulated symbols comprises: providing the first stream of modulated symbols generated from the downlink traffic information processor 200A separately from the second stream of modulated symbols generated from the downlink traffic information processor 200B for the complex multiplier and merging the first stream of modulated symbols and the second stream of modulated symbols by the complex multiplier.

Regarding claim 4, wherein modulating each of the plurality of channels of data further comprises: modulating a user second channel encoded data by one of the short-code modulators 210a-210m with a third code to produce a third stream of modulated symbols.

Regarding claim 5, wherein combining the plurality of streams of modulated symbols comprises: adding the first stream of modulated symbols to the second stream of modulated symbols by the adder 215 in one of the downlink traffic information processors 200A to 200K to provide a first added stream of modulated symbols; and providing the first added stream of modulated symbols separately from a third stream of modulated symbols in another one of the downlink traffic information processors 200A to 200K for the complex multiplier and merging the first added stream of modulated symbols and the third stream of modulated symbols by the complex multiplier.

Regarding claims 10-11 and 27-28, clearly, the complex pseudo-noise code comprises an in-phase pseudo-noise code component and a quadrature-phase pseudo-noise code component; and wherein the in-phase pseudo-noise code component and the quadrature-phase pseudo-noise code component are multiplied by a long code generated by the long-code generator 285.

Regarding claims 15 and 32, Dahlman also teaches that downlink transitions to multiple users in the same cell, or same sector are separated by spreading the modulated signal with different orthogonal short-code, for example, by the different short-code modulators 210a-210m (col. 7, lines 7-10 and col. 8, lines 7-10). Therefore, a length of the second code modulated by one short-code modulator can be greater than a length of the third code modulated by another short-code modulator.

Regarding claims 20 and 22, wherein the combiner comprises: a first adder 215 in one of the downlink traffic information processors 200A to 200K configured to provide the first stream of modulated symbols as a first combined stream; and a second adder

in another one of the downlink traffic information processors 200A to 200K configured to provide the second stream of modulated symbols as a second combined stream.

Regarding claim 21, wherein the plurality of modulators further comprises: a third short-code modulator configured to modulate a user second channel encoded data with a third code to produce a third stream of modulated symbols.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 6-9, 12, 14, 16-17, 23-26, 29, 31, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dahlman et al. in view of Gilhousen et al. (U.S. Patent No. 5,416,797, hereinafter "Gilhousen").

Regarding claims 6, 8, 23, and 25, although Dahlman does not explicitly show, teach or suggest providing a control channel encoded data with a fourth code to produce a fourth stream of modulated symbols comprising a pilot channel of modulated symbols.

Gilhousen discloses a related spread spectrum transmitter circuit shown in Figs. 4a-4c comprising a plurality of modulators, a combination circuit, and a complex multiplier circuit. Gilhousen also shows the transmitter circuit comprises a pilot channel in Fig. 4a and teaches that the pilot channel contains no data modulation and is

characterized as an un-modulated spread spectrum signal that all of the users of a particular cell-site or section use for acquisition or tracking purposes (col. 18, lines 15-19).

Therefore, it would have been obvious to one of ordinary skilled in the art that Dahlman's spread spectrum transmitter is capable of including a pilot channel to provide a control channel encoded data with a fourth code to produce a fourth stream of modulated symbols comprising a pilot channel of modulated symbols as taught by Gilhousen, for example, for the purpose of acquisition or tracking of the transmitter circuit.

Regarding claims 7, 9, 24, and 26, as described in claim 6 above, the adder 215 in one of the downlink traffic information processors 200A to 200K is capable of adding the fourth stream of modulated symbols to one of the first stream and the second stream of modulated symbols to provide a first added stream of modulated symbols; and providing the first added stream of modulated symbols separately from the remaining of the first stream and the second stream of modulated symbols generated by other downlink traffic information processors 200A to 200K for the complex multiplier and merging the first added stream of modulated symbols and the second stream of modulated symbols by the complex multiplier.

Regarding claims 12 and 29, although Hahlman does not explicitly show, teach, or suggest that the complex multiplier comprises: using a first of the combined streams and the in-phase pseudo-noise code component as real parts; and using a second of

the combined streams and the quadrature-phase pseudo-noise code component as imaginary parts.

Gilhausen shows the combination circuit indicated in Fig. 4c comprises an in-phase summation circuit 284 to generate in-phase component and a quadrature-phase summation circuit 286 to generate a quadrature component to the complex multiplier.

Therefore, it would have been obvious to one of ordinary skilled in the art that Hahlman's combination circuit 215 and/or 290 is capable of separating the summation of the in-phase and quadrature modulated signals prior the multiplication with the in-phase and quadrature-phase codes as taught by Gilhausen in order to separate the real part and the imaginary part of the modulated signals with the complex codes.

Regarding claims 14 and 31, as shown in Fig. 4a of Gilhausen spread spectrum transmitter, clearly, the plurality of modulators modulates the channel data with Walsh codes.

Regarding claims 16-17 and 33-34, as shown in Fig. 4b of Gilhausen spread spectrum transmitter, the transmitter comprises a plurality of gain control circuits 210-266 for adjusting the gains of each of the plurality of streams of modulated symbols generated by the plurality of modulators.

Double Patenting

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct

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from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1, 4, 10, 12, 16-18, 21, 27, 29, and 33-35 are rejected on the ground of nonstatutory double patenting over claims 1-4 of U. S. Patent No. 5,926,500 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: the claimed subject matters recited in each of the independent claims 1, 18, and 35 are included either in part and/or combination of claims 1, 3, and 4 of U. S. Patent No. 5,926,500; the claimed subject matters recited in claims 4 and 21 correspond to claim 4 of U. S. Patent No. 5,926,500; the claimed subject matters recited in claims 10, 12, 27, and 29 correspond to claim 1 of U. S. Patent No. 5,926,500; and the claimed subject matters recited in claims 16-17 and 33-34 correspond to claim 1 of U. S. Patent No. 5,926,500.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

14. Claims 1, 4, 10, 12, 16-18, 21, 27-29, and 33-35 are rejected on the ground of nonstatutory double patenting over claims 1-3 and 6 of U. S. Patent No. 5,930,230 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: the claimed subject matters recited in each of the independent claims 1, 18, and 35 are included either in part and/or combination of claims 1, 2, and 6 of U. S. Patent No. 5,930,230; the claimed subject matters recited in claims 4 and 21 correspond to claim 3 of U. S. Patent No. 5,930,230; the claimed subject matters recited in claims 10, 12, 27, and 29 correspond to claim 6 of U. S. Patent No. 5,930,230; and the claimed subject matters recited in claims 16-17 and 33-34 correspond to claim 1 of U. S. Patent No. 5,930,230.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Allowable Subject Matter

15. Claims 13 and 30 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims and timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is 571- 272-3051. The examiner can normally be reached on Monday-Friday 10:00-6:30 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on 571- 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/YOUNG T. TSE/
Primary Examiner, Art Unit 2611